NRAS StripAssay®

Identify the most relevant mutations in the NRAS gene to optimize colorectal cancer therapies

- NRAS represents a member of the RAS protein family that is involved in EGFR signalling
- Mutations in NRAS are found in a variety of human tumors
- In colorectal cancer (CRC) NRAS is mutated at a total frequency of approximately 3%
- Recent data suggest that NRAS mutations predict a lack of response to panitumumab and cetuximab therapy

<table>
<thead>
<tr>
<th>Cancer</th>
<th>Target</th>
<th>Therapeutic</th>
<th>Oncogene</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metastatic colorectal cancer</td>
<td>EGFR</td>
<td>Panitumumab Cetuximab</td>
<td>NRAS wildtype</td>
<td>Tumor remission</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NRAS mutated</td>
<td>Tumor progression</td>
</tr>
</tbody>
</table>

The Assay

- Simple protocol for complex diagnostic questions
- Manual or automated processing
- No expensive lab equipment required
- Ready-to-use reagents
- CE-labeled complete kit

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NRAS

NRAS and KRAS are members of the RAS oncoprotein family that act as MAPK signaling pathway GTPases downstream of the Epidermal Growth Factor Receptor (EGFR). Activating KRAS mutations predict a lack of response to anti-EGFR monoclonal antibody therapies (cetuximab or panitumumab) in colorectal cancer (CRC) patients. KRAS and NRAS mutations are mutually exclusive.

In the Panitumumab Randomized Trial in Combination with Chemotherapy for Metastatic Colorectal Cancer to Determine Efficacy (PRIME) study, NRAS mutations were detected in a fraction of KRAS wildtype CRC tumors. The published data suggest that NRAS mutations, in addition to KRAS mutations, predict a lack of response to anti-EGFR therapy in metastatic CRC patients.


<table>
<thead>
<tr>
<th>Mutations detected</th>
<th>Codon 12</th>
<th>Codon 13</th>
<th>Codon 61</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRAS StripAssay® 5-610</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

The three steps of the ViennaLab NRAS StripAssay®

1. **Amplification:** Multiplex PCR. Simultaneous biotin-labelling
   - Requirement: Thermocycler

2. **Hybridization:** Directly on the StripAssay® teststrips
   - Requirement: Incubator

3. **Identification:** Labeled products detected by streptavidin-alkaline phosphatase
   - Requirement: Naked eye or scanner & software

ViennaLab offers StripAssays® for a wide range of diagnostic applications. Visit www.viennalab.com